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COMMENTARY ON THE NORTH AMERICAN GENERA OF COMMELINACEAE

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During the course of a revision of the species of *Tradescantia* indigenous to the United States, published several years ago,[1] I found it advisable to make some correlative observations upon the genus as a whole and the American representation of the family generally. These rather casual excursions afield were both comforting and disquieting, for they showed that, although the Tradescantias of the United States are relatively homogeneous phylogenetically, those of the tropics are extremely heterogeneous, and also that the systematics of the family, at least in North America, is very precarious indeed. Such being the case, I fixed my attention upon the limited job in hand with a profound sense of thanks to Providence for my lot at that time, and a nebulous vow of propitiation by a revision of the tropical Spiderworts in the indefinite future. The "future" has arrived rather unexpectedly at last, for I find my vow exacted by the needs of the 'Flora of Panama' upon which I have been working for some years past.

The Commelinaceae always have been difficult subjects for herbarium study because of their deliquescent flowers. It is not easy to understand, therefore, why previous systematists of the family have focused almost their whole attention upon floral structure in the delimitation of subfamilies, tribes, and genera. In his account of the family for de Candolle's 'Monographiae', C. B. Clarke[2]

[1] Anderson, E., and R. E. Woodson, Jr. Contr. Arnold Arb. **9**: 1–132. 1935.
[2] C. B. Clarke, in A. & C. DC. Monogr. **3**: 115–324. 1881.

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erected three tribes, Pollieae, with fruit indehiscent, Commelineae, with dehiscent fruit, fertile stamens 3–2, sterile stamens 0–4, and Tradescantieae, with dehiscent fruit, fertile stamens 6–5. In establishing these groups, Clarke found it prudent, in the case of the last two tribes, to call attention to exceptions amongst a number of genera obviously included arbitrarily within either tribe in spite of divergence from the characters of diagnosis. The modern reader probably will find it difficult to understand why *Phaeosphaerion (Athyrocarpus)* was placed within the Pollieae, whilst *Commelina* remained with several discrepant genera in the Commelineae, as well as why *Callisia* was placed within the Tradescantieae, upon the characters provided, since the greater number of its species (as interpreted by Clarke himself) have only 1 to 3 stamens. Numerous other instances of ambiguity and inconsistency could be mentioned.

The most recent general system of Commelinaceae is that by Brückner[3] for Engler's 'Natürlichen Pflanzenfamilien', in which two subfamilies are provided: Tradescantieae, with actinomorphic flowers, and Commelineae, with flowers zygomorphic. With such distinctive terms employed in the general key, the reader is prone to remember the regular flowers of *Tradescantia* and the strongly irregular flowers of *Commelina* (as he is apt to be acquainted with them), and to proceed on his way until tripped by the deliquescent flowers from the herbarium before him or stopped dead in his tracks by a reference to the text of the generic descriptions of Commelineae. These usually side-step the issue of zygomorphy entirely or admit inconsistency (as for *Aneilema,* p.175: "Pet. frei, das äussere *mitunter* kleiner" [italics mine]). Reference to herbarium specimens and to standard icones shows that in most genera the zygomorphy of the corolla is either absent or so slight that it is highly impractical. Brückner further divides the Tradescantieae into two tribes, Hexandrae and Triandrae, upon the basis of "6 fertile Stam." and "3 fertile Stam., 3 oder O sterile", respectively. The latter, of course, is highly embarrassing to such a genus as *Callisia,* the fertile stamens of which vary from 1 to 6, without accompanying staminodes.

Generic characters used by both Clarke and Brückner, as well as by less prominent authors, have tended to accentuate the stamen constituency, as number of fertile stamens, presence of staminodia, bearding, etc. My general impression, based upon observations of

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[3] Brückn. in Engl. & Prantl, Nat. Pflanzenfam. **15a**: 159–181. 1930.

such genera as *Callisia* and *Tripogandra (Descantaria)*, is that the stamens of the family show great variation frequently amongst species of a single genus. An outstanding example of the impracticality of Brückner's application of staminal characters is provided by his inclusion of *Descantaria* within the Hexandrae and *Neodonnellia* within the Triandrae. Even a casual examination of representative species shows that the outer stamens of both are essentially alike.

In making a major subdivision of the Commelinaceae, I would base my separation upon inflorescence structure. In the entire family the basic inflorescence design is the scorpioid cyme. But in the Commelineae, as I distinguish the tribe, the ultimate branches or units of the inflorescence are composed of individual scorpioid cymes which appear 1-sided superficially; these may be solitary or variously compounded even in a given species, or very rarely reduced to a solitary flower. In my interpretation of the Tradescantieae, on the other hand, the basic structure of the inflorescence has been modified so that the ultimate branches or units of the inflorescence are *paired sessile* scorpioid cymes which appear as a 2-sided unit superficially, rarely reduced to a solitary flower.

Very little experience is necessary both to distinguish these types of inflorescence and to appreciate their validity. At first, the observer may confuse occurrences of separate but superficially paired inflorescences of the Commelineae type with the more highly evolved type characteristic of the Tradescentieae. But closer examination of such specimens (as in *Tinantia leiocalyx* Clarke) will show that pairing here is merely a numerical chance and not a concrete unit of structure as in the whole tribe Tradescantieae. The paired cymes of *Tradescantia* and its near relatives, also, are likely to cause trouble at first, because they are so condensed. But superficially they usually will appear 2-sided or "parted in the middle", which a dissection or closer examination will confirm.

The paired cymes of the Tradescantieae are considered to be an integral condensation derived from the individual cymes of the Commelineae. Amongst the genera of this tribe condensation proceeds within the limits of the paired cyme. In the genus *Tripogandra* the paired cymes are borne at the tip of a common naked peduncle which usually is elongate, although greatly foreshortened in *T. Warscewicziana,* a species somewhat transitional to *Callisia.* These pedunculate cymes may be terminal or axillary to a stem

leaf and solitary or in clusters. The few to many flowers of each cyme are subtended by rather inconspicuous bracteoles which ordinarily are hyaline or somewhat petalaceous, only rarely slightly foliaceous, and are disposed in two imbricated series upon either side of the axis.

In the remaining genera of Tradescantieae, typified most familiarly by *Tradescantia (sensu stricto)*, the paired cymes are sessile, and are borne in the axils of bracts which are more or less leaf-like. These bracts, therefore, are oriented at a divergence approaching 90° to the position of the bracteoles of the cymes proper. It appears fairly obvious, then, that the bracts of *Tradescantia* and its closest relatives are merely subterminal foliage leaves which subtend the sessile umbelliform cymes through the complete reduction of the peduncle so manifest in *Tripogandra.*

These remarks pertain particularly to the terminal or pedunculate lateral inflorescences of the Tradescantias. Still more pronounced modification is found in further reductions in sessile lateral inflorescences, as may be seen in such a common species as *T. canaliculata.* In this species the bracts are reduced proportionally to the shortening of the lateral peduncule until they are demonstrated only with difficulty in completely sessile cymes; thus the single foliage leaf of the main stem comes to subtend the paired cymes previously terminal to a lateral, 2-bracted branch. In the same species such condensations of lateral inflorescences frequently, if not almost invariably, occur in conjunction with the terminal inflorescences of the main stem, resulting in a congested flower head capable of resolution into basically paired cymes only with rather careful dissection and balanced interpretation. The conclusion of this trend of reduction is attained in *T. nana* Mart. & Gal. in which both the terminal and lateral inflorescences consist of a solitary, sessile flower.

As separated on the inflorescence structure, the Commelineae include genera of both hemispheres, whilst the Tradescantieae are entirely confined to the Americas. I view the latter as being the more recent, not only upon the basis of distribution and morphological philosophy of the inflorescence, but also for a reason that my readers may soon appreciate: the differentiation of the genera is much the more flexible, so much so, in fact, that not infrequently it will be necessary to invoke a combination of characters, as is often done for families and orders. These "genera" of Tradescan-

tieae are more to be construed as evolutionary tendencies still in the process of differentiation than as distinct entities in sharp focus. Nevertheless, I am reasonably confident of the validity and convenience of the groups as they stand here.

In separating genera, I usually have found that there are sufficient characters without employing some of the more difficult criteria of my eminent predecessors which, if applied consistently, would increase the number of groups, obscure phylogenetic lines, and render identification even more difficult, at least in the herbarium. In short, my view of the North American genera of Commelinaceae is that expressed in the key which follows. Although designed particularly for North and Central America, including the Antilles, the key will be found of use in the southern continent, where nearly the same representation occurs, with the addition of two or three other groups which are not likely to cause trouble. In order to clarify my position the better, I have appended a few comments on the revised generic lines, as well as some of the more obvious nomenclatural adjustments necessary. These changes are based only upon species with which I am familiar at present, and are not complete compilations. With the advent of better World political conditions, a monographic treatment of the whole group will be in order.

KEY TO THE GENERA

a. Ultimate branches of the inflorescence composed of individual scorpioid cymes appearing 1-sided superficially, solitary or variously clustered, very rarely reduced to a solitary terminal flower; corolla regular or irregular *(Commelineae)*.
  b. Cymes variously clustered or compounded, rarely solitary, but never enclosed by a spathaceous bract.
    c. Fertile anthers separate; plants caulescent, terrestrial.
      d. Anthers large, with an inconspicuous connective, dehiscing by apical pores; seeds with a fleshy aril ..... I. DICHORISANDRA
      dd. Anthers small, but with a conspicuous sterile connective, dehiscing longitudinally; seeds dry.
        e. Ovary and capsules 3-celled.
          f. Flowers regular or essentially so ..... II. ANEILEMA
          ff. Flowers very strongly irregular ..... III. TINANTIA
        ee. Ovary and capsules 2-celled ..... IV. FLOSCOPA
    cc. Fertile anthers fused into a cochleate hood; large acaulescent epiphytes ..... V. COCHLIOSTEMA
  bb. Cymes solitary, enclosed by a conspicuous spathaceous bract.
    c. Fruits dehiscent, capsular; sterile stamens (when present) with cruciate anthers ..... VI. COMMELINA
    cc. Fruits indehiscent, pergamentaceous; sterile stamens with hastate-triangular anthers ..... VII. PHAEOSPHAERION

aa. Ultimate branches of the inflorescence composed of paired sessile scorpioid cymes appearing as a 2-sided unit superficially, rarely reduced to a solitary flower; corolla regular *(Tradescantieae)*.
b. Corolla apopetalous, the petals free to the base.
c. Paired cymes distinctly pedunculate, never sessile and subtended by leafy bracts (but the bracteoles rarely somewhat foliaceous in part); stamens 6, usually in 2 very dissimilar series, the outer occasionally sterile, rarely all fertile and essentially similar; sepals foliaceous or petalaceous..... ..... VIII. TRIPOGANDRA
cc. Paired cymes sessile and subtended by more or less conspicuous leafy bracts, rarely appearing pedunculate and the bracts greatly reduced, but the stamens usually 1–3, rarely 6, all fertile, and the sepals paleaceous....IX. CALLISIA
ccc. Paired cymes sessile and subtended by conspicuous bracts essentially similar to the leaves (coriaceous spathes in *Rhoeo);* stamens 6, all fertile and essentially similar; sepals foliaceous or petalaceous.
d. Cymes on slender peduncles lateral to the main stem.
e. Flowering peduncles elongate, usually branched; bracts foliaceous; sepals becoming fleshy in fruit.....X. CAMPELIA
ee. Flowering peduncles very short, simple; bracts appearing as coriaceous spathes; sepals drying in fruit.....XI. RHOEO
dd. Cymes terminal to the main stem, occasionally also lateral in the upper leaf axils; lateral cymes very rarely reduced to a solitary flower..... .....XII. TRADESCANTIA
bb. Corolla gamopetalous, the petals united at the base.
c. Flowers borne in leafy-bracted cymes; corolla tube relatively short; plants with extensive creeping stems.
d. Sepals separate, foliaceous; plants tumid.....XIII. SETCREASEA
dd. Sepals united into an unequally-lobed tube, hyaline; plants somewhat succulent, but not tumid.....XIV. ZEBRINA
cc. Flowers solitary and sessile in the axils of the congested upper leaves; corolla tube long and slender; semiacaulescent alpines.....XV. WELDENIA

I. DICHORISANDRA Mikan, Del. Fl. & Faun. Bras. *pl. 3.* 1820; C. B. Clarke in A. & C. DC. Monogr. **3**: 272. 1881; Brückn. in Engl. & Prantl, Nat. Pflanzenfam. **15a**: 170. 1930, nom. conserv.

? Stickmannia Neck. Elem. **3**: 171. 1791, nom. rejic.

Petaloxis Raf. Fl. Tellur. 2: 83. 1836 [1837].

This is one of the most distinctive genera of Commelinaceae, as is shown particularly by the anthers and arillate fruit. The petals, also, are much more resistant to deliquescence than those of other Spiderworts. The genus is best represented in Brazil, from whence nearly 30 species have been described, mostly spurious, I suspect upon the basis of familiarity with the common and highly variable *D. hexandra* (Aubl.) Standl. in Panama.

II. ANEILEMA R. Br. Prodr. 270. 1810; C. B. Clarke, loc. cit. 195. 1881; Brückn. loc. cit. 174. 1930.

Murdannia Royle, Illustr. Bot. Himal. 403. *pl. 95.* 1839 [1840]. Brückn. loc. cit. 173. 1930; also numerous other Asiatic and African synonyms for both genera enumerated by Clarke and Brückner.

I am placing within *Aneilema* the erstwhile species of *Tradescantia* having simple scorpioid cymes as component units. This is an entirely natural procedure as anyone who examines a suite of the large Asiatic and African genus will see. Why these plants were ever placed within *Tradescantia* in the first place is hard to understand. The Old World species of *Aneilema* present much variation in inflorescence modification, and it is significant to find that those of America follow much the same system of variation. Although *Aneilema (sensu stricto)* was placed in the Commelineae and *Murdannia* in the Tradescantieae by Brückner, it seems quite obvious to me that the two are congeneric. The irregularity of the corolla of the former, as Brückner himself confesses, is only occasional ("Pet. frei, das äussere mitunter kleiner", p.175); while the same, oddly enough, can be said for the regularity in *Murdannia* ("Pet. frei, mitunter das äussere wenig anders gestaltet", p.173).

ANEILEMA **chihuahuensis** (Standl.) Woodson, comb. nov.
Tradescantia chihuahuensis Standl. Field Mus. Publ. Bot. **17**: 227. 1937.

ANEILEMA **geniculata** (Jacq.) Woodson, comb. nov.
Tradescantia geniculata Jacq. Select. Stirp. Amer. 94. *pl. 64.* 1763; C. B. Clarke, loc. cit. 300. 1881.

ANEILEMA **Greenmanii** Woodson, nom. nov.
Tradescantia macrophylla Greenm. Proc. Amer. Acad. **33**: 472. 1898, non *Aneilema macrophylla* R. Br.

ANEILEMA **holosericea** (Kunth) Woodson, comb. nov.
Dichorisandra longifolia Mart. & Gal. Bull. Acad. Brux. **9**[2]: 378. 1842, non *Aneilema longifolia* Wall. nec Hook.
Tradescantia floribunda Mart. & Gal. loc. cit. 377. 1842, non *Aneilema floribunda* Hook. & Arn.
Tradescantia holosericea Kunth, Enum. **4**: 92. 1843; C. B. Clarke, loc. cit. 302. 1881.
Tradescantia holosericea Kunth β. *dracaenoides* C. B. Clarke, loc. cit. 1881.
Tradescantia longifolia (Mart. & Gal.) Greenm. Proc. Amer. Acad. **33**: 471. 1898.

Tradescantia dracaenoides (Clarke) Greenm. Proc. Amer. Acad. **39**: 70. 1903.

Certain of the several varieties of this species, as enumerated by Clarke, may well be entitled to specific rank, others appear questionable even as varieties. This is a question that must await monographic study.

ANEILEMA **Karwinskyana** (R. & S.) Woodson, comb. nov.

Tradescantia Karwinskyana R. & S. Syst. **7**: 1165. 1830; C. B. Clarke, loc. cit. 299. 1881.

ANEILEMA **linearis** (Benth.) Woodson, comb. nov.

Tradescantia linearis Benth. Pl. Hartweg. 27. 1839; C. B. Clarke, loc. cit. 298. 1881.

Tradescantia graminifolia Mart. & Gal. loc. cit. 378. 1842.

Tradescantia venustula Kunth, Enum. **4**: 87. 1843; C. B. Clarke, loc. cit. 298. 1881.

Tradescantia rhodantha Torr. Bot. Mex. Bound. Surv. 225. 1859.

Tradescantia linearis Benth. β. *graminifolia* (Mart. & Gal.) C. B. Clarke, loc. cit. 299. 1881.

ANEILEMA **pulchella** (HBK.) Woodson, comb. nov.

Tradescantia pulchella HBK. Nov. Gen. & Sp. **1**: 262. 1815 [1816]; **7**: *pl. 673*. 1825; C. B. Clarke, loc. cit. 297. 1881.

III. TINANTIA Scheidw. in Otto & Dietr. Allgem. Gartenzeit. **7**: 364. 1839; C. B. Clarke, loc. cit. 285. 1881; Brückn. loc. cit. 175. 1930, nom. conserv.

Pogomesia Raf. loc. cit. 67. 1836 [1837]. nom. rejic.

I have criticized Brückner in his use of regularity or irregularity of the corolla so severely in preceding paragraphs, that I find it necessary to apologize for my use of the same character in distinguishing *Aneilema* and *Tinantia*. As I have explained (p. 147), however, the irregularity of the corolla of *Aneilema* and the irregularity of *Murdannia* as applied by Brückner is merley a variable comparison of size of the petals. The flowers of *Tinantia*, on the other hand, are as incontestably irregular as are those of *Commelina*, not only in size of the petals, but in their coloration and structure of the stamens. The species of *Tinantia* are extremely variable in the size of the plants and the degree of compounding of their inflorescences.

IV. Floscopa Lour. Fl. Cochinch. 192. 1790; C. B. Clarke, loc. cit. 265. 1881; Brückn. loc. cit. 176. 1930.

Dithyrocarpus Kunth, loc. cit. 76. 1843.

I regard *Floscopa* as very closely related to *Tinantia,* with which I would unite it were it not for the 2-celled ovary and capsules. The common species of Central America, *F. robusta* (Seub.) Clarke, sets seeds with the most astonishing abundance and rapidity.

V. Cochliostema Lem. Illustr. Hort. **6**: Misc. 70. *pl. 217.* 1859; C. B. Clarke, loc. cit. 231. 1881; Brückn. loc. cit. 180. 1930.

This magnificent monotypic genus has recently been discovered in Panama. The thick indument of the petal margins is remarkable, as it is composed of beaded hairs similar to those of the staminal filaments of the family generally.

VI. Commelina L. Sp. Pl. 60. 1753; C. B. Clarke, loc. cit. 138. 1881; Brückn. loc. cit. 177. 1930, also numerous synonyms supplied by Clarke and Brückn.

Sauvallea Wright in Sauv. Fl. Cub. 156. 1873.

Commelinantia Tharp, Bull. Torrey Club **49**: 269. 1922.

The genus *Commelina* is represented by more species in the Old than in the New World. Amongst the Old World species are found many startling morphological departures, as judged from the species of the United States, including forms with 2- or 3-loculed ovaries, others with variable numbers of flowers or even stamens, wide variations in bearding of stamens, and in relative size of the petals. Such being the case, it seems in every way better to combine *Sauvallea* and *Commelinantia* within the inclusive genus.

Commelina **anomala** (Torr.) Woodson, comb. nov.

Tradescantia anomala Torr. Bot. Mex. Bound, Surv. 225. 1859.

Tinantia anomala (Torr.) C. B. Clarke, loc. cit. 287. 1881.

Commelinantia anomala (Torr.) Tharp, Bull. Torrey Club **49**: 269. 1922; Brückn. loc. cit. 176. 1930.

The interested reader should refer to Dr. Tharp's full account of the reasons for regarding this species as a distinct genus. I do not think it necessary to answer his arguments in detail, for that would entail an extended discussion of morphology with particular regard to the Asiatic species of *Commelina* beyond immediately profitable ends. The student of Commelinaceae who reads this inadequate paragraph, however, may be sufficiently familiar already with the

variable species of the Old World and with the perplexing variability of the whole family, for that matter, and probably will well understand the taxonomic confusion in the family that would be caused by over-evaluation of such characters as bearding of the stamens, etc., etc.

In the Gray Herbarium Card Index there is already an entry for "*Commelina anomala* Torrey" ex Tharp, loc. cit., so a word of explanation for the new combination here is necessary. The source of the Card Index entry is a footnote to Dr. Tharp's paper on *Commelinantia* (Bull. Torrey Club **49**: 269. 1922), which explains that Dr. Torrey first determined the type specimen as "*Commelyna anomala* Torr.", later striking out the "*Commelyna*" and substituting "*Tradescantia*". It seems quite clear that this publication in Dr. Tharp's footnote cannot be maintained as valid, as it violates Article 40 of the International Rules, being patently citation as a synonym.

COMMELINA **Blainii** (Wright) Woodson, comb. nov.
Sauvallea Blainii Wright, loc. cit. 157. 1873; C. B. Clarke, loc. cit. 315. 1881; Brückn. loc. cit. 171. 1930.

The distinctive characters of *Sauvallea* are the 6 fertile stamens and the solitary flowers, which, however, are enclosed within the characteristic spathe of the familiar Commelinas. The petals are subequal. These variants from the general run of Commelinas, however, are of the sort not found to be good generic criteria in the Commelinaceae, and even Clarke called attention to the similarity to *Commelina*.

VII. PHAEOSPHAERION Hassk. Flora **49**: 212. 1866; C. B. Clarke, loc. cit. 135. 1881.
Athyrocarpus Schlecht. Linnaea **26**: 454. 1853; Brückn. loc. cit. 179. 1930.

Phaeosphaerion is recognized here since there can be no doubt that *Athyrocarpus* was merely a suggested segregation from *Commelina* as far as Schlechtendal was concerned, and no formal transfer was made under *Athyrocarpus*.

VIII. TRIPOGANDRA Raf. Fl. Tellur. **2**: 16. 1836 [1837], emend.
Heminema Raf. loc. cit. 17. 1837.
Descantaria Schlecht. Linnaea **26**: 140. 1853; Brückn. loc. cit. 171. 1930, nom. subnud. provis.

Disgrega Hassk. Flora **49**: 215. 1866, nom subnud.
Leptorhoeo C. B. Clarke in Hemsl. Diagn. Pl. Nov. 55. 1880; C. B. Clarke, loc. cit. 317. 1881; Brückn. loc. cit. 167. 1930.
Cuthbertia Small, Fl. Southeast. U. S. 237. 1903.
Donnellia C. B. Clarke, Bot. Gaz. **33**: 261. 1902.
Neodonnellia Rose, Proc. Biol. Soc. Wash. **19**: 96. 1906; Brückn. loc. cit. 174. 1930.

Tripogandra, Heminema, Descantaria, Disgrega, Donnellia, and *Neodonnellia* all were erected to include species, previously placed in *Tradescantia,* having two greatly dissimilar stamen series, the outer with shorter filaments and anthers (occasionally sterile) quite different from those of the inner. Species of *Leptorhoeo* and *Cuthbertia* have essentially similar stamens, but without the foliaceous bracts of *Tradescantia (sensu stricto).* In addition, the former is supposed to be distinguished by having the seeds solitary in the locules of the capsules.

Tripogandra is emended here to include these numerous elements for the following reasons: (1) It is obvious to any student of the *Tradescantia* complex that there is a marked tendency towards inequality of the stamens throughout; even in the *Descantaria* group such characters as the bearding of the stamens are quite variable, and could be made the basis of further dubious generic segregations, which are devoutly to be avoided; (2) seed number in the locules of the capsules varies amongst individual plants of a single species (cf. Anderson & Woodson, Contr. Arnold Arb. **9**: 27–29. *pl. 7.* 1935). In my revision with Anderson, to which reference has been made, *Cuthbertia* was included with *Tradescantia,* for it was not at that time realized that the bracts of the latter were wholly lacking in the former. It is now recognized that such is the case (cf. p. 143, paragraph 3, of this paper), and that the foliaceous structures at first interpreted as bracts are in reality the lower bracteoles of the paired cymes, as is shown by their orientation.

I do not understand why *Descantaria* was taken up by Brückner, as Schlechtendal published it merely as a suggested segregation from *Tradescantia,* without a description, as a matter of fact without even indicating valid reasons for separating it, and without making any formal transfers of species. *Tripogandra* and *Heminema,* on the other hand, are quite well described as Rafinesquian genera go, and there can be no doubt of their application. Characteristically, both genera consist of the same species, *Tradescantia*

multiflora, although Rafinesque credits one to Schwarz and the other to Jacquin.

TRIPOGANDRA **amplexicaulis** (Kl.) Woodson, comb. nov.
Tradescantia amplexicaulis Kl. ex C. B. Clarke, loc. cit. 304. 1881.
Descantaria amplexicaulis (Kl.) Brückn. loc. cit. 1927; loc. cit. 1930.

TRIPOGANDRA **angustifolia** (Rob.) Woodson, comb. nov.
Tradescantia angustifolia Rob. Proc. Amer. Acad. **27**: 185. 1892.
Descantaria angustifolia (Rob.) Brückn. Notizblatt **10**: 56. 1927; Brückn. in Engl. & Prantl, loc. cit. 171. 1930.

TRIPOGANDRA **cumanensis** (Kunth) Woodson, comb. nov.
Tradescantia cumanensis Kunth, Enum. **4**: 96. 1843; C. B. Clarke, loc. cit. 306. 1881.
Descantaria cumanensis (Kunth) Schlecht. ex Brückn. loc. cit. 1927; loc. cit. 1930.

TRIPOGANDRA **Disgrega** (Kunth) Woodson, comb. nov.
Tradescantia Disgrega Kunth, loc. cit. 97. 1843; C. B. Clarke, loc. cit. 305. 1881.
Disgrega mexicana Hassk. ex C. B. Clarke, loc. cit. 1881, nom. nud. in synon.
Descantaria Disgrega (Kl.) Brückn. loc. cit. 1927; loc. cit. 1930.

TRIPOGANDRA **elongata** (G. F. W. Meyer) Woodson, comb. nov.
Tradescantia elongata G. F. W. Meyer, Fl. Esseq. 146. 1818; C. B. Clarke, loc. cit. 303. 1881.
Descantaria elongata (G. F. W. Meyer) Brückn. loc. cit. 1927; loc. cit. 1930.

TRIPOGANDRA **floribunda** (Hook. & Arn.) Woodson, comb. nov.
Aneilema floribunda Hook. & Arn. Bot. Beechey Voy. 311. 1840.
Tradescantia filiformis Mart. & Gal. Bull. Acad. Brux. **9**^{2}: 276. 1842.
Leptorhoeo filiformis (Mart. & Gal.) C. B. Clarke in Hemsl. Diagn. Pl. Nov. 55. 1880; C. B. Clarke, loc. cit. 317. 1881; Brückn. loc. cit. 167. 1930.
Leptorhoeo floribunda (Hook. & Arn.) Baill. Hist. Pl. **13**: 218. 1894.

Three errors are widespread in citing this species under *Leptorhoeo*, including two variants in spelling the generic name *(Leptorrhoeo, Leptorhoës)*, and the combination itself is frequently accredited to Hemsley (even the citation of Clarke himself in DC. Monogr.).

TRIPOGANDRA **grandiflora** (Donn. Sm.) Woodson, comb. nov.
Callisia grandiflora Donn. Sm. Bot. Gaz. **31**: 125. 1901.
Donnellia grandiflora (Donn. Sm.) Clarke, Bot. Gaz. **33**: 261. 1902.
Neodonnellia grandiflora (Donn. Sm.) Rose, Proc. Biol. Soc. Wash. **19**: 96. 1906; Brückn. loc. cit. 174. 1930.

TRIPOGANDRA **Lundellii** (Standl.) Woodson, comb. nov.
Tradescantia Lundellii Standl. Field Mus. Publ. Bot. **22**: 5. 1940.

TRIPOGANDRA **minuta** (C. B. Clarke) Woodson, comb. nov.
Tradescantia minuta C. B. Clarke, loc. cit. 307. 1881.
Descantaria minuta (C. B. Clarke) Brückn. loc. cit. 56: 1927; Brückn. in Engl. & Prantl, loc. cit. 171. 1930.

TRIPOGANDRA MULTIFLORA (Sw.) Raf. loc. cit. 16. 1836 [1837].
Tradescantia multiflora Sw. Prodr. 57. 1789; C. B. Clarke, loc. cit. 305. 1881.
Tradescantia procumbens Willd. Sp. Pl. **2**[1]: 19. 1800.
Heminema multiflora (Sw.) Raf. loc. cit. 17. 1836 [1837].
Descantaria procumbens (Willd.) Hassk. ex C. B. Clarke, loc. cit. 1881, nom. nud. in synon.
Descantaria multiflora (Sw.) Brückn. loc. cit. 56. 1927; Brückn. in Engl. & Prantl, loc. cit. 172. 1930.

TRIPOGANDRA **Palmeri** (Rose) Woodson, comb. nov.
Tradescantia Palmeri Rose, Contr. U. S. Nat. Herb. **1**: 113. 1891.
Descantaria Palmeri (Rose) Brückn. loc. cit. 56. 1927.

TRIPOGANDRA **rosea** (Vent.) Woodson, comb. nov.
Tradescantia rosea Vent. Jard. Cels. *pl. 24.* 1800; Anders. & Woods. loc. cit. 112. 1935; C. B. Clarke, loc. cit. 298. 1881; Brückn. loc. cit. 167. 1930.
Cuthbertia rosea (Vent.) Small. Fl. Southeast. U. S. 237. 1903.

I am not making adjustments under *Tripogandra* for the two varieties which Anderson and I recognized under *T. rosea* in our

earlier revision (loc. cit. 1935), as I am not certain whether they should be interpreted as varieties or species. This is a question that can be settled only by extensive field study.

TRIPOGANDRA **saxicola** (Greenm.) Woodson, comb. nov.
Tradescantia saxicola Greenm. Proc. Amer. Acad. **39**: 70. 1903.
Descantaria saxicola (Greenm.) Brückn. loc. cit. 56. 1927.

TRIPOGANDRA **Warscewicziana** (Kunth & Bouché) Woodson, comb. nov.
Tradescantia Warscewicziana Kunth & Bouché, Ind. Sem. Hort. Berol. **11**: 1847; C. B. Clarke, loc. cit. 302. 1881.
Spironema Warscewiczianum Hassk. ex. C. B. Clarke, loc. cit. 1881, nom. nud. in synon.
Spironema Warscewiczianum (Kunth & Bouché) Brückn. loc. cit. 171. 1930.

IX. CALLISIA L. in Loefl. It. Hisp. 305. 1758; C. B. Clarke, loc. cit. 309. 1881; Brückn. loc. cit. 173. 1930.
Hapalanthus Jacq. Select. Stirp. Amer. 11. *pl. 11.* 1763.
Spironema Lindl. Edwards's Bot. Reg. N. S. **3**: *pl. 47*, Miscel. 26. 1840; C. B. Clarke, loc. cit. 313. 1881; Brückn. loc. cit. 171. 1930.
Tradescantella Small. loc. cit. 238. 1903.
Rectanthera Degener, Fl. Hawai. **1**: 62. 1932.

CALLISIA **fragrans** (Lindl.) Woodson, comb. nov.
Spironema fragrans Lindl. loc. cit. 1840; C. B. Clarke, loc. cit. 1881; Brückn. loc. cit. 1930.
Rectanthera fragrans (Lindl.) Degener, Fl. Hawai. **1**: 62. 1932.

Aside from its gigantic size, the relationship of this species to the small creeping plants of *Callisia* should be sufficiently clear. The long runners by which *C. fragrans* propagates vegetatively probably are related phylogenetically to the creeping stems of the latter.

The remaining genera require little comment, as my views coincide with current interpretations of them. These studies still leave *Tradescantia* a large and rather complicated genus, although not as much so as formerly. Future studies may well restrict the genus even further, devoting particular attention to such tropical and subtropical groups as *T. micrantha* Torr., *T. commelinoides* R. & S. and their relatives, and the *T. fluminensis* Vell. complex.